

APPENDIX H HABITAT DESCRIPTIONS

HIGH STRUCTURE GRASSLANDS

Management Indicator Species: Plains Sharp-tailed Grouse (*Tympanuchus phasianellus jamesi*)

The plains sharp-tailed grouse is selected as a management indicator species for the biological community most often found in grasslands with a diversity of structural stages, including an abundance of high structure grasslands. Interspersed shrubs and shrub communities also contribute to habitat suitability for this species and many other wildlife species. Habitats that are grazed lightly by livestock and/or periodically rested from annual livestock grazing generally benefit sharp-tailed grouse and many sensitive species including but not limited to short-eared owl, upland sandpiper, and long-billed curlew. Several species of upland nesting waterfowl also respond favorably to high structure levels resulting from lighter grazing intensities and periodic rest from annual grazing. The supporting FEIS contains a more complete list of other wildlife species that typically benefit from management for high vegetation structure, structurally diverse grasslands, and maintenance and enhancement of shrubs on grasslands.

Northern Mixed Grass Prairie

Hens on northern mixed grass prairie tend to select areas with the tallest and densest cover available for their nests in the spring. Most nest-site selection and initiation occurs in April and early May before or just as spring green-up is beginning. At this time most of the available cover is residual from previous growing seasons. In addition to being the primary cover available at the onset of nesting, residual cover also helps to offset the negative effects of a lack of current-year nesting cover during drought years when new vegetative cover is reduced or unavailable.

Cover height and density at nest sites in the spring frequently exceed average visual obstruction readings (Robel et al. 1970) of 6 inches. Average visual obstruction readings (VORs) of 11 inches have been reported at nest sites in some study areas. Hens frequently select clumps of herbaceous cover taller than the surrounding vegetation for their nest sites. Grasslands across much of the Thunder Basin National Grassland that are periodically rested from annual livestock grazing or grazed at light intensities can be expected to provide patches of cover suitable for nesting. Grazing that results in non-uniform forage utilization patterns may also provide cover patches suitable for nesting. If cover levels are being monitored in the fall or early winter after livestock grazing, loss of cover over the winter to wind, snowpack and other natural factors has to be considered to reasonably predict nesting cover conditions the following spring. Long-term monitoring of over-winter loss of cover will help better determine the relationships between fall and spring cover levels.

Another important consideration in the management of nesting cover for this species is the size of the grassland patches providing quality cover for nest sites. If quality nesting habitat occurs as small islands in a sea of moderately to heavily grazed habitat with relatively low and uniform cover levels, predation may reduce nesting success in the quality habitat. Under these conditions, nest densities may also be substantially lower than what could be expected where quality habitat is provided across a higher percentage of the landscape. Within sharp-tailed grouse habitat, more than 20% of the area around display grounds or across potential habitat should be managed as quality nesting cover to establish or maintain populations. To maximize sharp-tailed grouse populations, approximately 80% or more of an area should be managed as quality nesting habitat. Most nests are located within 1 mile of display grounds. Individual patch sizes of quality nesting cover across pastures or range sites should be at least 160 acres in size.

Quality nesting cover on mixed grasslands occurs where mid and/or tall grass species are dominant, and ungrazed or lightly grazed cover has accumulated over a few years. On less productive mixed-grass prairies that receive an average of 14 to 16 inches of precipitation, quality nesting cover is typically found less on upland sites and more in the taller and denser cover patches in run-in sites (clumps of tall vegetation surrounded by shorter species types or vegetation) and along drainages become more important for nesting. Where long-term grazing has reduced the composition of mid and/or tall grass species, quality nesting cover is sometimes unavailable regardless of the grazing intensity.

Although residual cover is an important factor influencing sharp-tailed grouse productivity, maintaining adequate levels of current-year vegetation as nesting and brood cover is also critical. Also, a diversity of plant species composition and cover levels across the landscape helps provides quality brooding habitat. This diversity should include conditions that favor forb production and a full range of cover levels within pastures or grazing allotments, including substantial areas with relatively high vertical grassland structure remaining through August as escape cover from predators, especially raptors.

To provide quality nesting and brooding habitats, herbaceous vegetation and litter should be allowed to accumulate over a period of years. However, to maintain optimum breeding and foraging habitats over time requires periodic burning or intensive grazing once every 3 to 5 years to maintain vigor of native grasses and forbs. This interval should be extended when drought conditions occur.

Preferred winter habitats include structurally diverse grasslands with interspersed shrubs. Tree buds and fruits of buffaloberry, rose, snowberry, and juniper are common winter foods in many areas. Small grains and croplands on intermingled private croplands are also heavily utilized when available.

SAGEBRUSH HABITATS WITH TALL, DENSE AND DIVERSE UNDERSTORIES

Management Indicator Species: Greater Sage Grouse (*Centrocercus urophasianus*)

The sage grouse is selected as a management indicator species for sagebrush habitats that have tall, dense and diverse herbaceous understories. These areas typically have a history of lighter livestock grazing intensities. A list of other wildlife species that typically favor these habitat conditions is provided in the supporting FEIS. Some of these species include sage thrasher, Brewer's sparrow, pronghorn and sage vole. Several species of upland nesting waterfowl also respond favorably to these habitat conditions that result from lighter grazing intensities and periodic rest from annual grazing.

Sagebrush stands with relatively tall and dense sagebrush and an abundance of residual herbaceous cover are preferred by sage-grouse for nesting. Nest success and sage-grouse productivity have been reported to increase with increased sagebrush height and residual cover levels in the herbaceous understory. Once again, the importance of residual cover is noted, and its importance undoubtedly increases during drought years when current year herbaceous cover is reduced or unavailable.

Most nesting in Wyoming occurred in sagebrush cover of 20 to 40 percent, which is comparable to what is reported in other states. Other investigators suggested that sage cover over 30 percent may be too thick, and nesting suitability for sage-grouse may begin declining beyond that level. Quality habitat is described as a sagebrush stand with 15 to 25% canopy cover of sagebrush and a tall and dense understory of native grasses and forbs. The tallest sagebrush available on Wyoming sites is reported as being preferred for nesting. These sites are generally larger stands, with patches of taller (16 – 32 inches), denser (up to 35% canopy cover) sagebrush interspersed throughout the stand and where no more than 25% of the stand is comprised of small openings. Tall (>7 inch height) and dense residual herbaceous cover of native grasses and forbs from the previous growing season provides the cover available at the onset of the nesting season when most nest sites are selected and egg-laying and incubation begins. Most nests are within 2 to 3 miles of display grounds.

Brooding habitat is found in sagebrush communities of 10 to 30 percent sagebrush cover with small grassland openings or intermingled meadows that support an abundance of bugs and forbs like dandelions and yarrow for foraging by young grouse. Like other prairie grouse species, grasshoppers and other insects are also important diet items, especially for broods. Wet and sub-irrigated meadows, seeps, riparian habitats and other wetland areas that occur in, or adjacent to sage grouse habitat also provide key foraging areas during the spring, summer, and fall.

Sage grouse wintering habitat is described as the tallest (at least 12 inches above greatest snow depth) sagebrush and most dense (up to 40% canopy cover) sagebrush possible. In many cases the nesting stands and the wintering stands are the same.

PRAIRIE DOG COLONIES AND LOW STRUCTURE GRASSLANDS

Management Indicator Species: Black-tailed Prairie Dog (*Cynomys ludovicianus*)

The black-tailed prairie dog is selected as a management indicator species for low structure grasslands and the biological community associated with prairie dog colonies. A list of other wildlife species that typically benefit from management for low structure grasslands and maintenance or expansion of prairie dog colonies is provided in the supporting FEIS. Some of these species include burrowing owl, ferruginous hawk, and mountain plover. Average VORs across prairie dog colonies are typically less than 1 or 2 inches.

Black-tailed prairie dogs occupy prairies (shortgrass and mixed grass) and shrublands dominated by sagebrush on the northern plains. Most soils on the NFS lands in the planning area are suitable for prairie dog burrowing. Even soils with shallow bedrock are known to support prairie dog colonies. Prairie dogs may prefer some soils but few soils in the planning area preclude prairie dog burrowing.

Forested and wetlands vegetation types are considered unsuitable for prairie dogs. Grassland vegetation types including those with minor shrub components are considered preferred habitat. Since black-tailed prairie dogs also occur in shrublands and modify shrublands by removing shrubs in and around their colonies, shrublands are considered secondary but, none-the-less, potential habitat.

Slopes with suitable soils and vegetation that are less than 10 percent slope are considered preferred habitat. Slopes ranging from 10 to 30 percent are classified as secondary or suitable habitat. Areas with average slopes exceeding 30 percent are identified as unsuitable.

All water and wetlands are classified as unsuitable for prairie dog colonization. Areas with shallow water tables are also classified as unsuitable.

On mixed grass prairie and to a lesser extent on shortgrass prairie, colonies frequently originate on sites that have been disturbed from previous farming or other soil disturbances and on areas grazed by livestock. Heavily grazed sites where livestock concentrate are more likely to be colonized by prairie dogs. Soil disturbances in the form of water developments, pipelines, range ripping and furrowing, and past cultivation are also good predictors of suitable prairie dog habitat and potential sites likely to be colonized by prairie dogs.

OPEN MATURE AND LATE SUCCESSIONAL PONDEROSA PINE FORESTS

Potential Management Indicator Species: Pygmy Nuthatch (*Sitta pygmaea*)

The pygmy nuthatch is selected as a management indicator species for open mature and late successional ponderosa pine forests that have a relative abundance of snags and large tall trees. A list of other wildlife species that typically benefit from management for these forest conditions is provided in the supporting FEIS. Some of the species on this list include Lewis woodpecker and merlin.

Quality habitat for this year-long resident is simply described as open mature and late successional (structural stages 4a, 4b and 5) ponderosa pine forests with snags and relatively large and tall trees. Ideal habitat includes tall pines with broken-off branches or tops (towering stubs). Pygmy nuthatches generally use stands with less than 70% canopy cover. This species is a primary cavity nester preferring soft snags, but they occasionally use deserted woodpecker cavities.

This species is primarily insectivorous with bark and leaf beetles being some of the important diet items.

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